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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ELALLAM, AHMED	
ART UNIT	**PAPER NUMBER**
2668	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/676,743	Applicant(s) ADLER, JOHN C.	
	Examiner AHMED ELALLAM	Art Unit 2668	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

HANH NGUYEN
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is responsive to Amendment filed on 5/19/2005. The Amendment has been entered.

Claims 1-29 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-5, 6 and 8, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu, US (5,412,652) in view of Takatori, US (5,550,805) and further in view of Swinkels et al, US (6,795,394), hereinafter referred to as Lu, Takatori and Swinkels respectively.

Referring to claim 1, Lu discloses a method for a communications network including a protect channel transmitting protect channel data (protection channels that transmit extra traffic (see figure 5 and column 8 lines 24-40) and working channel transmitting working channel data (a working channel that transmits normal traffic (see figure 5 and column 8 lines 24-40)), the method comprising transmitting the working channel data via the protect channel upon a

disruption in the working channel (when the working traffic fails the protection traffic is preempted (see column 8 lines 24-40)), and restoring the transmitting of protected channel data (when the failure has been rectified, full recovery is realized through the use of the ring table (see column 13 lines 61 through column 14 line 3)), wherein restoring includes applying a restoration protocol to the communications network to restore the transmittal of the protect channel data (a protocol is used to recovery from the failure and the network is restored to its previous state, thus the protect channel is restored (see column 13 lines 61 through column 14 line 3)).

Lu does not disclose that the restoration protocol is a 'mesh' restoration protocol. However, Takatori discloses a failure restoration system wherein a failure is restored using a mesh restoration protocol (see abstract and figures 1-4).

Therefore, It would have been obvious to one skilled in the art at the time of the invention to implement this type of network restoration protocol in Lu because mesh networks are very reliable since each node is connected to all other nodes and thus many protection paths can exist.

Lu in view of Takatori do not disclose restoring transmission of the protect channel data on an alternate channel other than the protect channel, the alternate channel transmits the protect channel data from a first communications network node to a second communications network node via a mesh node. (In accordance with the specification, this limitation is interpreted by the Examiner to mean that protection traffic is routed over another protection route including

nodes in a protection ring, an intermediate node in the network and the destination node).

However, Swinkels discloses restoring the transmittal of protect channel data on an alternate channel, using meshed paths, wherein nodes in the meshed path makes routing decisions for the protected extra traffic. See figure 6, steps 300-320, column 4, lines 1-4, column 2, lines 59-65, and column 7, lines 28-44, column 9,lines 1-7. (Examiner interpreted the alternative path for the transmittal of the extra traffic using nodes along a protection path as been the claimed restoring the transmittal of protect channel data on an alternate channel, the alternate channel transmits the protect channel data from a first communications network node to a second communications network node via a mesh node).

Therefore, It would have been obvious to one skilled in the art at the time of the invention to implement the restoring of the extra traffic of Lu in view Takatori in accordance with the method of Swinkels so to prevent the dropping of extra traffic upon disruption in the working path. The advantage would be better bandwidth utilization in the system of Lu in view of Takatori.

Referring to claim 2, Lu in view of Takatori discloses the system discussed above. Takatori further disclose a distributed mesh restoration protocol (see figures 1-4).

Referring to claims 3, 5, 6 and 8, Lu in view of Takatori and further in view of Swinkels disclose the system discussed above. Furthermore, Lu discloses that the protect channel data is at least one of video, voice and data (the protect channels transmit extra traffic (see column 8 lines 24-40)). Wherein the

communications network is one of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy (SDH) (the Lu system is implemented in a SONET system (see abstract)).

Wherein the communication network includes a plurality of interconnected nodes, the interconnected nodes having at least one of a working channel and a protect channel (the network nodes include working and protecting channels (see figures 1 and 2));

Wherein the mesh restoration protocol includes communicating status and control messages across a physical network layer of the communication network (the ring tables are transmitted among the network nodes for restoring the network, this is inherently done using the physical layer (columns 13 and 14)).

Referring to claim 4, Lu in view of Takatori and further in view of Swinkels discloses routing protection data on alternate path as discussed above, but do not explicitly specify that the alternate channel includes a working and protect channel.

However, since a mesh network consist of node each having connection to each one other node in the network, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to take advantage of available routes including both connected working and protection paths in the mesh network of Lu in view of Takatori and further in view of Swinkels so to use the bandwidth in more efficient way.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Takatori and further in view of Swinkels and further in view of Shah et al, US (5,646,936), hereafter referred to as Shah.

Referring to claim 7, Lu in view of Takatori and further in view of Swinkels disclose the system discussed above. Lu in view of Takatori and further in view of Swinkels do not specify that the plurality of interconnected nodes transmits a disruption signal upon receiving a signal indicating the disruption, the disruption signal flooding the communication network to determine alternate routes for the protect channel data. However, Shah discloses of a path restoration technique wherein when a link disruption takes place alternate paths are set up through the use of flooding the network with messages about the disruption (see figure 1 and column 1 lines 51-63). It would have been obvious to one skilled in the art at the time of the invention to implement this feature in the system of Lu in view of Takatori and further in view of Swinkels because doing so would make Lu in view of Takatori and further in view of Swinkels more robust since it would exhaust efforts in finding alternate routes and not rely on a single alternate route.

3. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Takatori and further in view of Swinkels and further in view of Shioda et al, US (5,537,393), hereafter referred to as Shioda.

Referring to claims 9-11, Lu in view of Takatori and further in view of Swinkels discloses the system discussed above. Lu in view of Takatori and further in view of Swinkels does not disclose that the status and control

messages are communicated using SONET frame overhead bytes, out-of-band communications channels or a distributed routing protocol. However, Shioda discloses a system wherein a restoration protocol is implemented to restore protection channel data (see column 7) and wherein status and control information is communicated in frame overhead bytes (see column 7), which can be considered out-of-band channels and which are inherently designated (distributed) according to a protocol (see columns 7 and 8). It would have been obvious to one skilled in the art at the time of the invention to implement these features into Lu in view of Takatori and further in view of Swinkels because communicating this information out-of-band, in overhead byte and according to a distribution protocol would make Lu in view of Takatori and further in view of Swinkels more bandwidth efficient and resourceful.

4. Claims 12-18, 20-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioda in view of Takatori and further in view of Swinkels.

Referring to claims 12, 21 and 29, Shioda discloses an apparatus disposed in a communication network having a protect channel and a working channel (a node in a network that has working and protection lines (see figure 1)), the apparatus comprising a node controller (the nodes have CPUs (see column 4 lines 25-33)), a route processor coupled to the node controller, the route processor implementing a restoration protocol (the nodes performs the restoration of working and protection lines (see columns 7 and 8)), a circuit

coupled to the node controller and the route processor, the circuit including a logic gate for receiving signals identifying disruptions in transmissions in the protect channel and the working channel (a AIS generator and comparator identify disruptions in the working and protection paths (see columns 7 and 8)), a switch responsive to the signals identifying disruptions in transmissions in the protect channel and the working channel (the data from the working path is switched to the protection path (see columns 7 and 8)), the switch communicating the route processor to implement restoration of protect channel data (the data is switched from the working and or protection lines to other working and/or protection lines (see columns 7 and 8)).

Shioda does not disclose that the restoration protocol is a 'mesh' restoration protocol.

However, Takatori discloses a failure restoration system wherein a failure is restored using a mesh restoration protocol (see abstract and figures 1-4). It would have been obvious to one skilled in the art at the time of the invention to implement this type of network restoration protocol in Shioda because mesh networks are very reliable since each node is connected to all other nodes and thus many protection paths can exist.

Note regarding claim 29, Shioda does not disclose that the system is implemented in a program. However, it would have been obvious to one skilled in the art at the time of the invention to implement the Shioda system in this manner because the developmental costs of a software implementation are less than that

of a hardware based implementation. Furthermore, software is easier to upgrade than hardware.

Shioda in view of Takatori do not disclose the transmittal of the protect channel data on a channel other than the protect channel by transmitting the protect channel data from a first communications network node to a second communications network node via a mesh node.

However, Swinkels discloses restoring the transmittal of protect channel data on a channel other than the protect channel, using meshed paths, wherein nodes in the meshed path makes routing decisions for the protected extra traffic. See figure 6, steps 300-320, column 4, lines 1-4, column 2, lines 59-65, and column 7, lines 28-44, column 9,lines 1-7. (Examiner interpreted the alternative path for the transmittal of the extra traffic as been the claimed restoring the transmittal of protect channel data on a channel other than the protect channel, because the working traffic is switched over the protection path, and since the protection path is used by the working traffic, the alternate path is not the protection path, see figure 6, in addition, using nodes along a mesh protection path of Swinkels reads on the claimed alternate channel transmits the protect channel data from a first communications network node to a second communications network node via a mesh node)).

Therefore, It would have been obvious to one skilled in the art at the time of the invention to implement the restoring of the working traffic of Shioda in view of Takatori in accordance with the method of Swinkels so to prevent the dropping

of protected traffic upon disruption in the working path. The advantage would be better bandwidth utilization in the system of Shioda in view of Takatori.

Referring to claim 13, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above. Furthermore, Shioda discloses that the circuit is coupled to at least one line card, the line card transmitting the signals identifying disruptions in transmissions in the protect channel and the working channel (the AIS signals are transmitted over the working and protection lines to indicate disruptions, note the circuits are inherently implemented on cards (see columns 7 and 8 and figure 7)).

Referring to claim 14, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above. Furthermore, Shioda discloses that the circuit includes an input/output circuit for receiving instructions identifying criteria for applying mesh restoration to protect channel data (when the ID's do not match the path is considered disrupted, thus this is the criteria used (see columns 7 and 8 and figure 7)).

Referring to claim 15, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above. Shioda does not disclose that the criteria are a function of the type of data being transmitted as the protect channel data. However, it would have been obvious to one skilled in the art at the time of the invention to base the criteria on data type because different data types have different transmission requirements (e.g. voice data requires low delay), thus basing the criteria on the data type in Shioda will make Shioda in view of Takatori and further in view of Swinkels system more flexible and reliable.

Referring to claims 16-18, 20, 22-25 and 28, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above. Furthermore, Shioda discloses that the protect channel data includes at least one of voice, video and data (data is transmitted in the SPE of the frames of the system (see figure 1));

wherein the communications network is one of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy (SDH) (the system uses the SONET protocol (see abstract and figure 1));

wherein the communication network includes a plurality of interconnected nodes, the interconnected nodes having at least one of a working channel and a protect channel (the network has interconnected nodes and working and protection channels (see figure 1)).

Wherein the route processor implements a mesh restoration protocol that includes communicating status and control messages across SONET overhead bytes of the communication network (the Shioda system uses overhead bytes to implement the protection system (see columns 7 and 8));

wherein the means for restoring further includes means for finding one or more alternate channels to transmit the protected channel data, the one or more alternate channels including connected working and protect channels (the PCA data can be rerouted over another protection path or over a working path of another subscriber (see columns 7 and 8 and figure 7));

wherein the apparatus includes a plurality of circuits disposed in a plurality of linked nodes, each circuit coupled to a node controller associated with

one of the plurality of linked nodes (the nodes comprise many circuits and are in a network of linked nodes and the nodes have CPUs (see figures 2 and 7)).

Referring to claim 27, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above, but do not specify that the apparatus is in a management bay with a plurality of other cards. However, It would have been obvious to one skilled in the art at the time of the invention to implement the nodes of Shioda in view of Takatori and further in view of Swinkels in this fashion because doing so would give network technicians a well-confined and organized way of performing operation, testing, repairing and maintenance operations, thus making the Shioda in view of Takatori and further in view of Swinkels system more user friendly. This is particularly important because since disruptions are occurring it is important to repair the network elements that are malfunctioning and causing these disruptions as quickly as possible, thus implementing nodes in this well-confined and organized manner will help improve the timing and quality of such repairs.

5. Claims 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioda in view of Takatori and further in view of Swinkels and further in view of Shah.

Referring to claims 19 and 26, Shioda in view of Takatori and further in view of Swinkels disclose the system discussed above, but do not specify that the plurality of interconnected nodes transmits a disruption signal upon receiving a signal indicating the disruption, the disruption signal flooding the

communication network to determine alternate routes for the protect channel data. However, Shah discloses of a path restoration technique wherein when a link disruption takes place alternate paths are set up through the use of flooding the network with messages about the disruption (see figure 1 and column 1 lines 51-63). It would have been obvious to one skilled in the art at the time of the invention to implement this feature in the system of Shioda in view of Takatori and further in view of Swinkels because doing so would make Shioda in view of Takatori and further in view of Swinkels more robust since it would exhaust efforts in finding alternate routes and not rely on a single alternate route.

Response to Arguments

6. Applicant's arguments filed 5/19/2005 have been fully considered but they are not persuasive:

Claim 1:

Applicant argues among other things that Swinkels does not disclose restoring protect channel data by transmitting protect channel data from a first node to a second node via a mesh node, Examiner respectfully disagrees, because, Swinkels contrary to Applicants remarks, discloses having mesh protection paths having nodes along the protection paths, each node makes a routing decision for the protected extra traffic. See column 9, lines 1-7.

Applicant did not show support in the specification with regard to the first node, second node and mesh node. Does the first node is the source node, and the second node a destination node, and what is meant by a mesh node in

accordance with the specification. Applicant is kindly required to clarify this added elements in the independent claims in response to this office action.

Claim 4:

Argument with reference to claim 4 is moot in view of new ground of rejection.

Claim 12:

Applicant argument with reference to claim 12 is similar in content to that of base claim 1, thus similar response as indicated to claim 1 above applies.

Claims 2-3, 5, 6 -9, 13-25, and 26-29

Applicant argues that since this claims depend from base claims, they are patentable. Examiner respectfully disagrees since the respective precedent claims are not patentable, in addition to the rejections indicated above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Agarwal et al, US 2001/0038471.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2668
12/09/2005

HANH NGUYEN
PRIMARY EXAMINER